



# BCM 2604 Full imager



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## Introduction

Scanning a series of programming bar code labels can configure the scanner.

The scanner must be properly powered before programming.

During the programming mode, the scanner will acknowledge a good and valid reading with a short beep. It will give long beeps for either an invalid or bad reading.

# BCM2604-F Programming guide

**This document is to be used with the following Baracoda Barcode Scanners:  
BCM2604-F**

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## 1 Reset all parameters

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The reading of the "Default settings" label turns all the parameters back to default settings:



## 2 Output

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### 2.1 Beeper – Good Read

The beeper may be programmed *On* or *Off* in response to a good read. Turning this option off, only turns off the beeper response to a good read indication. All error and menu beeps are still audible. *Default = On.*



### 2.2 Beeper Volume – Good Read

The beeper volume codes modify the volume of the beep the imager emits on a good read. *Default =, High..*



### 2.3 Beeper Pitch – Good Read

The beeper pitch codes modify the pitch (frequency) of the beep the imager emits on a good read. *Default = Medium.*



### 2.4 Beeper Duration – Good Read

The beeper duration codes modify the length of the beep the imager emits on a good read. *Default = Normal.*



\* Normal Beep



Short Beep

## 2.5 Number of Beeps – Good Read

The number of beeps of a good read can be programmed from 1 – 3 (maximum 3). The same number of beeps will be applied to the beeper and LED in response to a good read. For example, if you program this option to have two beeps, there will be two beeps and two LED flashes in response to a good read. The beeps and LED flashes are in sync with one another. To change the number of beeps, scan the bar code below and then scan a digit (1-3) bar code and the **Save** bar code on the [Programming Chart](#) (Appendix E of this manual). *Default = One.*



Number of Pulses

## 2.6 Good Read Delay

This sets the minimum amount of time before the imager can read another bar code. *Default = No Delay.*



\* No Delay



Short Delay (500 ms)



Medium Delay (1,000 ms)



Long Delay (1,500 ms)

## 2.7 Aimer Delay

The aimer delay allows a delay time for the operator to aim the imager before the picture is taken. Use these codes to set the time between when the trigger is activated and when the picture is taken. During the delay time, the aiming light will appear, but the LEDs won't turn on until the delay time is over



200 milliseconds



400 milliseconds

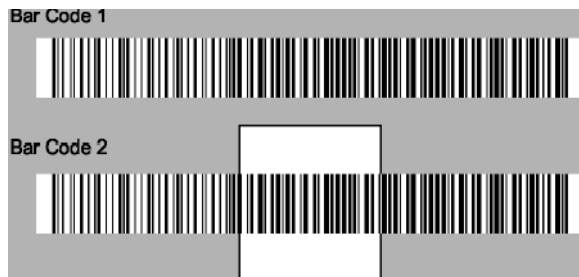


\* Off (no delay)

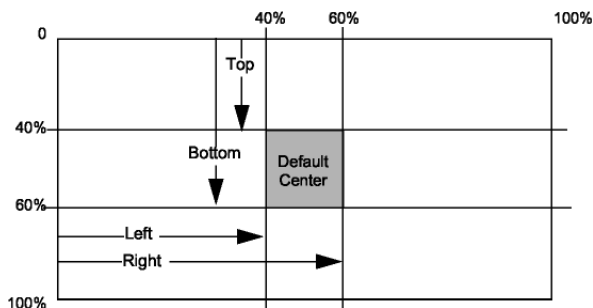
## 2.8 Centering

Use Centering to narrow the imager's field of view to make sure the imager reads only those bar codes intended by the user. For instance, if multiple codes are placed closely together, centering will insure that only the desired codes are read. (Centering can be used in conjunction with [Aimer Delay](#), page 5-11, for the most error-free operation in applications where multiple codes are spaced closely together. Using the Aimer Delay and Centering features, the imager can emulate the operation of older systems, such as linear laser bar code imagers.)

In the example below, the gray area is the full imager field of view and the white area is the centering window. Bar Code 1 will not be read, while Bar Code 2 will be.



The default centering window is a 128x96 pixel area in the center of the imager's field of view. The following diagram illustrates the default top, bottom, left, and right pixel positions, measured from the top and the left side of the imager's field of view, which is 640 by 480 pixels.



Scan Centering On, then scan one of the following bar codes to change the top, bottom, left, or right of the centering window. Then scan the percent you want to shift the centering window using digits on the inside back cover of this manual. Scan Save. Default Centering = 40% for Top and Left, 60% for Bottom and Right.





Centering On



\* Centering Off



Top of Centering Window



Bottom of Centering Window



Left of Centering Window



Right of Centering Window

## 2.9 Decode Search Mode

There are three selectable decode (scanning) modes:

Full Omnidirectional - Searches for bar code features beginning at the center of an image, and searches to the image's limits. This mode reads all symbologies, in any orientation. The Full Omnidirectional search is very thorough which may slow performance time.

Note: This search mode is the default setting



Quick Omnidirectional - This is an abbreviated search for bar code features around the center region of an image. This mode quickly reads all symbologies in any orientation. The Quick Omnidirectional mode may miss some off-center symbols, as well as larger Data Matrix and QR Code symbols.



Quick Omnidirectional

Advanced Linear Decoding - Performs quick horizontal linear scans in a center band of the image. This mode is not omnidirectional, but does quickly read linear and stacked bar codes. Advanced Linear Decoding cannot read 2D, OCR, or Postal symbols.



Advanced Linear Decoding

## 2.10 Output Sequence Overview

Require Output Sequence

When turned off, the bar code data will be output to the host as the Imager decodes it. When turned on, all output data must conform to an edited sequence or the Imager will not transmit the output data to the host device.

Note: This selection is unavailable when the Multiple Symbols Selection is turned on.

Output Sequence Editor

This programming selection allows you to program the Imager to output data (when scanning more than one symbol) in whatever order your application requires, regardless of the order in which the bar codes are scanned. Reading the Default Sequence symbol programs the Imager to the Universal values, shown below. These are the defaults. Be certain you want to delete or clear all formats before you read the Default Sequence symbol.

Note: To make Output Sequence Editor selections, you'll need to know the code I.D., code length, and character match(es) your application requires. Use the Alphanumeric symbols (Appendix E) to read these options.

To Add an Output Sequence

1. Scan the Enter Sequence symbol (see Output Sequence Editor, in two pages).
2. Code I.D.

On the Symbology Chart on Appendix A, find the symbology to which you want to apply the output sequence format. Locate the Hex value for that symbology and scan the 2 digit hex value from the Programming Chart (Appendix E).

3. Length

Specify what length (up to 9999 characters) of data output will be acceptable for this symbology. Scan the four digit data length from the Programming Chart. (Note: 50 characters is entered as 0050. 9999 is a universal number, indicating all lengths.) When calculating the length, you must count any programmed prefixes, suffixes, or formatted characters as part of the length (unless using 9999).

4. Character Match Sequences

On the ASCII Conversion Chart (Appendix B), find the Hex value that represents the character(s) you want to match. Use the Programming Chart to read the alphanumeric combination that represents the ASCII characters. (99 is the Universal number, indicating all characters.)

5. End Output Sequence Editor

Scan F F to enter an Output Sequence for an additional symbology, or Save to save your entries.

Other Programming Selections

~ Discard

This exits without saving any Output Sequence changes.

## 2.11 Output Sequence Example

In this example, you are scanning Code 93, Code 128, and Code 39 bar codes, but you want the imager to output Code 39 1 st, Code 128 2nd, and Code 93 3rd, as shown below.

Note: Code 93 must be enabled to use this example.



A - Code 39



B - Code 128



C - Code 93

You would set up the sequence editor with the following command line:

SEQBLK62999941FF6A999942FF69999943FF

The breakdown of the command line is shown below:

SEQBLKsequence editor start command

62 code identifier for Code 39

9999 code length that must match for Code 39, 9999 = all lengths 41 start character match for Code 39, 41h = "A" FF termination string for first code

6A code identifier for Code 128

9999 code length that must match for Code 128, 9999 = all lengths 42 start character match for Code 128, 42h = "B" FF termination string for second code

69 code identifier for Code 93

9999 code length that must match for Code 93, 9999 = all lengths 43 start character match for Code 93, 43h = "C" FF termination string for third code

To program the previous example using specific lengths, you would have to count any programmed prefixes, suffixes, or formatted characters as part of the length. If you use the example on the previous, assume a <CR> suffix and specific code lengths, you would use the following command line:

**SEQBLK62001141FF6A001242FF69001143FF**

The breakdown of the command line is shown below:

SEQBLK sequence editor start command 62 code identifier for

**Code 39**

0011 Code 39 code length (9) plus CR suffix (2) = 11

41 start character match for Code 39, 41h = "A"

FF termination string for first code

6A code identifier for **Code 128**

0012 Code 128 code length (10) plus CR suffix (2) = 12

42 start character match for Code 128, 42h = "B"

FF termination string for second code

69 code identifier for **Code 93**

0011 Code 93 code length (9) plus CR suffix (2) = 11

43 start character match for Code 93, 43h = "C"

FF termination string for third code

### 2.11.1 Output Sequence Editor



Enter Sequence



Default Sequence

### 2.11.2 Require Output Sequence

When an output sequence is Required, all output data must conform to an edited sequence or the imager will not transmit the output data to the host device. When it's On/Not Required, the imager will attempt to get the output data to conform to an edited sequence, but if it cannot, the imager transmits all output data to the host device as is.

When the output sequence is Off, the bar code data is output to the host as the imager decodes it. Note: This selection is unavailable when the Multiple Symbols Selection is turned on.



Required



On/Not Required



\*Off

## 2.12 No Read

With No Read turned *On*, the Imager notifies you if a code cannot be read. If using a Quick\*View Scan Data Window, an “NR” appears when a code cannot be read. If No Read is turned *Off*, the “NR” will not appear.



On



\* Off

If you want a different notation than “NR,” for example, “Error,” or “Bad Code,” you can edit the output message using the Data Formatter. The hex code for the No Read symbol is 9C.

## 2.13 Print Weight

Print Weight is used to adjust the way the imager reads Matrix symbols. If an imager will be seeing consistently heavily printed matrix symbols, then a print weight of 6 may improve the reading performance. For consistently light printing, a print weight of 2 may help. After scanning the Set Print Weight bar code, set the print weight (from 1-7) by scanning digits from the inside back cover, then scanning Save. Default = 4.



Set Print Weight



\* Default

## 2.14 Video Reverse

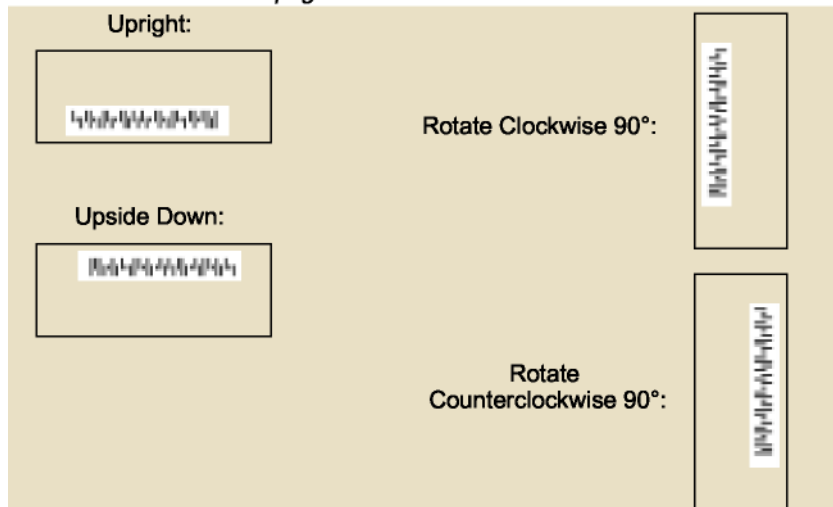
Video Reverse is used to allow the imager to read bar codes that are inverted. The “Off” bar code below is an example of this type of bar code. If additional menuing is required, Video Reverse must be disabled to read the menu bar codes and then re-enabled after menuing is completed.

Note: Images downloaded from the unit will not be reversed. This is a setting for decoding only.



## 2.15 Working Orientation

Some bar codes are direction-sensitive. For example, Kix codes and OCR can misread when scanned sideways or upside down. Use the working orientation settings if your direction-sensitive codes will not usually be presented upright to the scanner. *Default = Upright.*



## 2.16 Prefix Suffix

It is of course possible to add a suffix/prefix but not via this programming guide. It is only possible sending commands via Bluetooth. Please refer to the BaracodaManager documentation for further information.

### 3 Symbologies

---

This programming section contains the following menu selections

Linear barcodes

Codabar, Code 39, Interleaved 2 of 5, Code 93, EAN, Code 2 of 5, IATA Code 2 of 5, Matrix 2 of 5, Code 11, Code 128, Telepen, UPC A, UPC-A/EAN-13 with Extended Coupon Code, EAN/JAN 13, EAN/JAN 8, MSI, Plessey Code, RSS-14, RSS Limited, RSS Expanded, PosiCode A and B

Stacked barcodes

Code49, Code 16K, PDF417, Macro PDF417, Micro Pdf417, EAN/UCC composite codes, RSS stacked and composite, Trioptic, TLC39, Codablock F

Postal Barcodes

Postnet, Planet Code, British Post, Canadian Post, Kix (Netherlands)Post, Australian Post, Japanese Post, China Post, Korea Post,

2D Barcodes

QR Code, DataMatrix, MaxiCode, Aztec Code

#### 3.1 Reset all parameters

The reading of the "Default settings" label turns all the parameters back to default settings:



#### 3.2 All Symbologies On and Off

If you want to decode all the symbologies allowable for your imager, scan the All Symbologies On code. If on the other hand, you want to decode only a particular symbology, scan All Symbologies Off followed by the On symbol for that particular symbology.



All Symbologies On



All Symbologies Off

#### 3.3 Message Length Description

You are able to set the valid reading length of some of the bar code symbologies. If the data length of the scanned bar code doesn't match the valid reading length, the imager will issue an error beep. You may wish to set the same value for minimum and maximum length to force the imager to read fixed length bar code data. This helps reduce the chances of a misread.

EXAMPLE: Decode only those bar codes with a count of 9-20 characters.

Min. length = 09 Max. length = 20

EXAMPLE: Decode only those bar codes with a count of 15 characters.

Min. length = 15 Max. length = 15

For a value other than the minimum and maximum message length defaults, scan the bar codes included in the explanation of the symbology, then scan the digit value of the message length and Save bar codes on the Programming Chart (Appendix E of this manual). The minimum and maximum lengths and the defaults are included with the respective symbologies.

### 3.4 Codabar

<Default All Codabar Settings>



#### ***Codabar***



\* On



Off



Transmit



Codabar Start/Stop Characters

#### 3.4.1 Codabar Check Character



Transmit



Default = Don't Transmit

#### 3.4.2 Codabar Check Character

Codabar check characters are created using different “modulos.” You can program the imager to read only Codabar bar codes with Modulo 16 check characters. Default = No Check Character.

No Check Character indicates that the imager reads and transmits bar code data with or without a check character.

When Check Character is set to Validate and Transmit, the imager will only read Codabar bar codes printed with a check character, and will transmit this character at the end of the scanned data.

When Check Character is set to Validate, but Don't Transmit, the unit will only read Codabar bar codes printed with a check character, but will not transmit the check character with the scanned data.



\* No Check Character



Validate Modulo 16, but  
Don't Transmit



Validate Modulo 16  
and Transmit

### 3.4.3 Codabar Concatenation

Codabar supports symbol concatenation. When you enable concatenation, the imager looks for a Codabar symbol having a “D” start character, adjacent to a symbol having a “D” stop character. In this case the two messages are concatenated into one with the “D” characters omitted. Default = On.

Character start



A12D

D34A

Select Require to prevent the imager from decoding a single “D” Codabar symbol without its companion. This selection has no effect on Codabar symbols without Stop/Start D characters.



\* On



Off



Require

### 3.4.4 Codabar Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (chapt 3.2) for additional information. Minimum and Maximum lengths = 2-60. Minimum Default = 4,



Maximum Default = 60.



### 3.5 Code 39

< Default All Code 39 Settings >



#### Code 39



#### 3.5.1 Code 39 Start/Stop Characters

Start/Stop characters identify the leading and trailing ends of the bar code. You may either transmit, or not transmit Start/Stop characters. Default = Don't Transmit



#### 3.5.2 Code 39 Check Character

No Check Character indicates that the imager reads and transmits bar code data with or without a check character.

When Check Character is set to Validate, but Don't Transmit, the unit only reads Code 39 bar codes printed with a check character, but will not transmit the check character with the scanned data.

When Check Character is set to Validate and Transmit, the imager only reads Code 39 bar codes printed with a check character, and will transmit this character at the end of the scanned data. Default = No Check Character.



### 3.5.3 Code 39 Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (chapt 3.2) for additional information. Minimum and Maximum lengths = 0-48. Minimum Default = 0, Maximum Default = 48.



### 3.5.4 Code 39 Append

This function allows the imager to append the data from several Code 39 bar codes together before transmitting them to the host computer. When this function is enabled, the imager stores those Code 39 bar codes that start with a space (excluding the start and stop symbols), and does not immediately transmit the data. The imager stores the data in the order in which the bar codes are read, deleting the first space from each. The imager transmits the appended data when it reads a Code 39 bar code that starts with a character other than a space. Default = Off.



### 3.5.5 Code 32 Pharmaceutical (PARAF)

Code 32 Pharmaceutical is a form of the Code 39 symbology used by Italian pharmacies. This symbology is also known as PARAF.

Note: Trioptic Code must be turned off while scanning Code 32 Pharmaceutical codes.



### 3.5.6 Full ASCII

If Full ASCII Code 39 decoding is enabled, certain character pairs within the bar code symbol will be interpreted as a single character. For example: \$V will be decoded as the ASCII character SYN, and /C will be decoded as the ASCII character #. Default = On.

NUL %U	DLE \$P	SP SPA CE	0 0	@ %V	P P	' % W	p +P
SOH \$A	DC1 \$Q	! /A	1 1	A A	Q Q	a +A	q +Q
STX \$B	DC2 \$R	“ /B	2 2	B B	R R	b +B	r +R
ETX \$C	DC3 \$S	# /C	3 3	C C	S S	c +C	s +S
EOT \$D	DC4 \$T	\$ /D	4 4	D D	T T	d +D	t +T
ENQ \$E	NAK \$U	% /E	5 5	E E	U U	e +E	u +U
ACK \$F	SYN \$V	& /F	6 6	F F	V V	f +F	v +V
BEL \$G	ETB \$W	‘ /G	7 7	G G	W W	g +G	w +W
BS \$H	CAN \$X	( /H	8 8	H H	X X	h +H	x +X
HT \$I	EM \$Y	) /I	9 9	I I	Y Y	i +I	y +Y
LF \$J	SUB \$Z	* /J	: /Z	J J	Z Z	j +J	z +Z
VT \$K	ESC %A	+ /K	; %F	K K	[ %K	k +K	{ %P
FF \$L	FS %B	, /L	< %G	L L	\ %L	l +L	%Q
CR \$M	GS %C	- -	= %H	M M	] %	m +M	} %R
SO \$N	RS %D	. .	> %I	N N	^ %N	n +N	~ %S
SI \$O	US %E	/ /O	? %J	O O	_ %O	o +O	DEL %T

Character pairs /M and /N decode as a minus sign and period respectively. Character pairs /P through /Y decode as 0 through 9.



Full ASCII On



\* Full ASCII Off

### 3.5.7 Code 39 Code Page

Code pages define the mapping of character codes to characters. If the data received does not display with the proper characters, it may be because the bar code being scanned was created using a code page that is different from the one the host program is expecting. If this is the case, scan the bar code below, select the code page with which the bar codes were created (see Code Page Mapping of Printed Bar Codes on page A-6), and scan the value and the Save bar code from the Programming Chart (Appendix E of this manual). The data characters should then appear properly.

#### Code 39 Code Page



### 3.6 Interleaved 2 of 5

< Default All Interleaved 2 of 5 Settings >



## Interleaved 2 of 5



\* On



Off

### 3.6.1 Check Digit

No Check Digit indicates that the imager reads and transmits bar code data with or without a check digit.

When Check Digit is set to Validate, but Don't Transmit, the unit only reads Interleaved 2 of 5 bar codes printed with a check digit, but will not transmit the check digit with the scanned data.

When Check Digit is set to Validate and Transmit, the imager only reads Interleaved 2 of 5 bar codes printed with a check digit, and will transmit this digit at the end of the scanned data. Default = No Check Digit



\* No Check Digit



Validate, but Don't Transmit



Validate and Transmit

### 3.6.2 Interleaved 2 of 5 Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (chapt 3.2) for additional information. Minimum and Maximum lengths = 2-80. Minimum Default = 4, Maximum Default = 80



Minimum Message Length



Maximum Message Length

### 3.7 Code 93

< Default All Code 93 Settings >



**Code 93**



\* On



Off

### 3.7.1 Code 93 Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (chapt 3.2) for additional information. Minimum and Maximum lengths = 0-80. Minimum Default = 0, Maximum Default = 80.



Minimum Message Length



Maximum Message Length

### 3.7.2 Code 93 Code Page

Code pages define the mapping of character codes to characters. If the data received does not display with the proper characters, it may be because the bar code being scanned was created using a code page that is different from the one the host program is expecting. If this is the case, scan the bar code below, select the code page with which the bar codes were created (see Code Page Mapping of Printed Bar Codes on page A-6), and scan the value and the Save bar code from the Programming Chart on the inside the back cover of this manual. The data characters should then appear properly.



Code 93 Code Page

## 3.8 Code 2 of 5

<Default All Code 2 of 5 Settings>



### Code 2 of 5



On



\* Off

#### 3.8.1 Code 2 of 5 Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description for additional information. Minimum and Maximum lengths = 1-48. Minimum Default = 4, Maximum Default = 48.



Minimum Message Length



Maximum Message Length

### 3.9 IATA Code 2 of 5

*<Default All Code IATA 2 of 5 Settings>*



#### *IATA Code 2 of 5*



On



\* Off

#### 3.9.1 IATA Code 2 of 5 Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (chapt 3.2) for additional information. Minimum and Maximum lengths = 1-48. Minimum Default = 4, Maximum Default = 48.



Minimum Message Length

Maximum Message Length



### 3.10 Matrix 2 of 5

*<Default All Matrix 2 of 5 Settings>*



#### *Matrix 2 of 5*



On



\* Off

#### 3.10.1 Matrix 2 of 5 Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (chapt 3.2) for additional information. Minimum and Maximum lengths = 1-80. Minimum Default = 4, Maximum Default = 80.



Minimum Message Length



Maximum Message Length

### 3.11 Code 11

<Default All Code 11 Settings>



#### Code 11



On



\* Off

#### 3.11.1 Check Digits Required

This option sets whether 1 or 2 check digits are required with Code 11 bar codes.

Default = Two Check Digits.



One Check Digit



\* Two Check Digits

#### 3.11.2 Code 11 Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (chapt 3.2) for additional information. Minimum and Maximum lengths = 1-80. Minimum Default = 4, Maximum Default = 80



Minimum Message Length



Maximum Message Length

### 3.12 Code 128

<Default All Code 128 Settings>



#### 3.12.1 ISBT 128 Concatenation

In 1994 the International Society of Blood Transfusion (ISBT) ratified a standard for communicating critical blood information in a uniform manner. The use of ISBT formats requires a paid license. The ISBT 128 Application Specification describes 1) the critical data elements for labeling blood products, 2) the current recommendation to use Code 128 due to its high degree of security and its

space-efficient design, 3) a variation of Code 128 that supports concatenation of neighboring symbols, and 4) the standard layout for bar codes on a blood product label. Use the bar codes below to turn concatenation on or off. Default=Off.



On



\* Off

### 3.12.2 Code 128 Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (chapt 3.2) for additional information. Minimum and Maximum lengths = 0-80. Minimum Default = 0, Maximum Default = 80.



Minimum Message Length



Maximum Message Length

### 3.12.3 Code 128 Code Page

Code pages define the mapping of character codes to characters. If the data received does not display with the proper characters, it may be because the bar code being scanned was created using a code page that is different from the one the host program is expecting. If this is the case, scan the bar code below, select the code page with which the bar codes were created (see Code Page Mapping of Printed Bar Codes on page A-6), and scan the value and the Save bar code from the Programming Chart on the inside the back cover of this manual. The data characters should then appear properly. Default = 2.



Code 128 Code Page

## 3.13 Telepen

### *Telepen*

<Default All Telepen Settings>



### *Telepen*



On



\* Off

#### 3.13.1 Telepen Output

Using AIM Telepen Output, the imager reads symbols with start/stop pattern 1 and decodes them as standard full ASCII (start/stop pattern 1). When Original Telepen Output is selected, the imager reads symbols with start/stop pattern 1 and decodes them as compressed numeric with optional full ASCII (start/stop pattern 2). Default = AIM Telepen Output.





\* AIM Telepen Output



Original Telepen Output

### 3.13.2 Telepen Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (chapt 3.2) for additional information. Minimum and Maximum lengths = 1-60. Minimum Default = 1, Maximum Default = 60.



Minimum Message Length



Maximum Message Length

### 3.14 UPC A

*Default All UPC-A Settings*



#### UPC A



\* On



Off

#### 3.14.1 UPC-A Check Digit

This selection allows you to specify whether the check digit should be transmitted at the end of the scanned data or not. Default = On.



\* On



Off

#### 3.14.2 UPC-A Number System

The numeric system digit of a U.P.C. symbol is normally transmitted at the beginning of the scanned data, but the unit can be programmed so it will not transmit it. Default = On.



\* On



Off

### 3.14.3 UPC-A Addenda



2 Digit Addenda On



\* 2 Digit Addenda Off



5 Digit Addenda On



\* 5 Digit Addenda Off

### 3.14.4 UPC-A Addenda Required

When Required is scanned, the imager will only read UPC-A bar codes that have addenda. You must then turn on a 2 or 5 digit addenda listed on page 820. Default = Not Required



Required



\* Not Required

### 3.14.5 UPC-A Addenda Separator

When this feature is on, there is a space between the data from the bar code and the data from the addenda. When turned off, there is no space. Default = On.



\* On



Off

### 3.14.6 UPC-A/EAN-13 with Extended Coupon Code

Use the following codes to enable or disable UPC-A and EAN-13 with Extended Coupon Code. Default = On.



\* On



Off

### 3.14.7 UPC-E0

Most U.P.C. bar codes lead with the 0 number system. For these codes, use the UPC-E0 selection. If you need to read codes that lead with the 1 number system, use UPC-E1. Default = On.



\* UPC E0 On



UPC E0 Off

### 3.14.8 UPC-E0 Expand

UPC-E0 expands the UPC-E code to the 12 digit, UPC-A format. Default = Off



On



\* Off

### 3.14.9 UPC-E0 Addenda Required

When Addenda Required is set to on, the imager will only read UPC-E bar codes that have addenda. Default = Not Required.



Required



\* Not Required

### 3.14.10 UPC-E0 Addenda Separator

When this feature is on, there is a space between the data from the bar code and the data from the addenda. When turned off, there is no space. Default = Off.



\* On



\* Off

### 3.14.11 UPC-E0 Check Digit

Check Digit specifies whether the check digit should be transmitted at the end of the scanned data or not. *Default = On.*



\* On



Off

### 3.14.12 UPC-E0 Number System

The numeric system digit of a U.P.C. symbol is normally transmitted at the beginning of the scanned data, but the unit can be programmed so it will not transmit it. Default = On.



\* On



Off

### 3.14.13 UPC-E0 Addenda

This selection adds 2 or 5 digits to the end of all scanned UPC-E data. Default = Off for both 2 Digit and 5 Digit Addenda.



2 Digit Addenda On



\* 2 Digit Addenda Off



5 Digit Addenda On



\* 5 Digit Addenda Off

### 3.14.14 UPC-E1

Most U.P.C. bar codes lead with the 0 number system. For these codes, use UPC-E0. If you need to read codes that lead with the 1 number system, use the UPC-E1 selection. Default = Off.



UPC E1 On



\* UPC E1 Off

## EAN/JAN-13

*<Default All EAN/JAN Settings>*



### 3.15 EAN/JAN-13



\* On



Off

### 3.15.1 EAN/JAN-13 Check Digit

This selection allows you to specify whether the check digit should be transmitted at the end of the scanned data or not. Default = On.



\* On



Off

### 3.15.2 EAN/JAN-13 Addenda

This selection adds 2 or 5 digits to the end of all scanned EAN/JAN-13 data. Default = Off for both 2 Digit and 5 Digit Addenda



2 Digit Addenda On



\* 2 Digit Addenda Off



\* 5 Digit Addenda Off

### 3.15.3 EAN/JAN-13 Addenda Required

When Addenda Required is set to on, the imager will only read EAN/JAN-13 bar codes that have addenda. Default = Not Required



Required



\* Not Required

### 3.15.4 EAN/JAN-13 Addenda Separator

When this feature is on, there is a space between the data from the bar code and the data from the addenda. When turned off, there is no space. Default = On.



On



Off

Note: If you want to enable or disable EAN13 with Extended Coupon Code, refer to UPC-A/EAN-13 with Extended Coupon Code (page 8-21).

### 3.15.5 ISBN Translate

This selection causes EAN-13 Bookland symbols to be translated into their equivalent ISBN number format. Default = Off.



### 3.16 EAN/JAN-8

*Defaults All Settings EAN/JAN-8*



#### *EAN/JAN-8*



#### 3.16.1 EAN/JAN-8 Check Digit

This selection allows you to specify whether the check digit should be transmitted at the end of the scanned data or not. Default = On.



#### 3.16.2 EAN/JAN-8 Addenda

This selection adds 2 or 5 digits to the end of all scanned EAN/JAN-8 data. Default = Off for both 2 Digit and 5 Digit Addenda.



### 3.16.3 EAN/JAN-8 Addenda Required

When Addenda Required is set to on, the imager will only read EAN/JAN-8 bar codes that have addenda. Default = Not Required.



### 3.16.4 EAN/JAN-8 Addenda Separator

When this feature is on, there is a space between the data from the bar code and the data from the addenda. When turned off, there is no space. Default = On.



## 3.17 MSI

<Default All MSI Settings>



### MSI



#### 3.17.1 MSI Check Character

Different types of check characters are used with MSI bar codes. You can program the imager to read MSI bar codes with Type 10 check characters.

Default = Validate Type 10, but Don't Transmit. When Check Character is set to Validate and Transmit, the imager will only read MSI bar codes printed with the specified type check character, and will transmit this character at the end of the scanned data.

When Check Character is set to Validate, but Don't Transmit, the unit will only read MSI bar codes printed with the specified type check character, but will not transmit the check character with the scanned data.



### 3.17.2 MSI Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (chapt 3.2) for additional information. Minimum and Maximum lengths = 4-48. Minimum Default = 4, Maximum Default = 48.



### 3.18 Plessey Code

*<Default All Plessey Code Settings>*



#### 3.18.1 Plessey Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (chapt 3.2) for additional information. Minimum and Maximum lengths = 4-48. Minimum Default = 4, Maximum Default = 48.



Maximum Message Length

### 3.19 RSS

#### 3.19.1 RSS-14

*< Default All RSS-14 Settings >*





### 3.19.2 RSS Limited

*< Default All RSS Limited Settings >*



\* On



Off

### 3.19.3 RSS Expanded

*< Default All RSS Expanded Settings >*



\* On



Off

### 3.19.4 RSS Expanded Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (chapt 3.2) for additional information. Minimum and Maximum lengths = 4-74. Minimum Default = 4, Maximum Default = 74.



Minimum Message Length



Maximum Message Length

### 3.20 PosiCode

*<Default All PosiCode Settings>*



\* On



Off

#### 3.20.1 PosiCode A and B



\* On



Off

You have to have PosiCode A and B on to read any of the PosiCode symbologies.



A and B On  
(No Limited)



A and B and Limited A On  
(Limited B Off)



A and B Limited B On (Limited A Off)

### 3.20.2 PosiCode Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (chapt 3.2) for additional information. Minimum and Maximum lengths = 2-80. Minimum Default = 4, Maximum Default = 48.



Minimum Message Length



Maximum Message Length

### 3.21 Trioptic Code

*Note: If you are going to scan Code 32 Pharmaceutical codes Trioptic Code must be off. Trioptic Code is used for labeling magnetic storage media.*



On



\* Off

### 3.22 Codablock F

<Default All Codablock F Settings>



On



\* Off

#### 3.22.1 Codablock F Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (chapt 3.2) for additional information. Minimum and Maximum lengths = 1-2048. Minimum Default = 1, Maximum Default=2048.



Minimum Message Length



Maximum Message Length

### 3.23 Code 16K

*<Default All Code 16K Settings>*



On



\* Off

#### 3.23.1 Code 16K Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (chapt 3.2) for additional information. Minimum and Maximum lengths = 0-160. Minimum Default = 1, Maximum Default = 160.



Minimum Message Length



Maximum Message Length

### 3.24 Code 49

*<Default All Code 49 Settings>*



#### *Code 49*



\* On



Off

#### 3.24.1 Code 49 Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (chapt 3.2) for additional information. Minimum and Maximum lengths = 1-81. Minimum Default = 1, Maximum Default = 81.



Minimum Message Length



Maximum Message length

### 3.25 PDF417

< Default All PDF417 Settings >



#### PDF417



\* On



Off

#### PDF417 Message Length

Scan the bar codes below to change the message length. Refer to [Message Length Description](#) (page 8-2) for additional information. Minimum and Maximum lengths = 1-2750. Minimum Default = 1, Maximum Default = 2750.



Minimum Message Length



Maximum Message Length

#### 3.25.2 MicroPDF417

< Default All MicroPDF417 Settings >



\* On



Off

#### 3.25.3 MicroPDF417 Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (chapt 3.2) for additional information. Minimum and Maximum lengths = 1-366. Minimum Default = 1, Maximum Default = 366.



Minimum Message Length



Maximum message length

### 3.26 EAN~UCC Composite Codes

Linear codes are combined with a unique 2D composite component to form a new class called EAN~UCC Composite symbology. EAN~UCC Composite symbologies allow for the co-existence of symbologies already in use.



On



\* Off

#### 3.26.1 UPC/EAN Version

Scan the UPC/EAN Version On bar code to decode EAN~UCC Composite symbols that have a UPC or EAN linear component. (This does not affect EAN~UCC Composite symbols with a UCC/EAN-128 or RSS linear component.)



UPC/EAN Version On



PC/EAN Version Off

#### 3.26.2 EAN~UCC Composite Code Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (chapt 3.2) for additional information. Minimum and Maximum lengths = 1-2435. Minimum Default = 1, Maximum Default = 2435.



Minimum Message Length



Maximum Message Length

#### 3.26.3 EAN~UCC Emulation

The imager can automatically format the output from any EAN~UCC data carrier to emulate what would be encoded in an equivalent UCC/EAN-128 or RSS and Composite symbol. EAN~UCC data carriers include UPC-A and UPC-E, EAN-13 and EAN-8, ITF-14, UCC/EAN-128, and EAN~UCC RSS and Composites. Data from 2D symbols such as Aztec Code, Data Matrix, or QR Code, which encode a leading FNC1, also invoke EAN~UCC emulation. If UCC/EAN-128 Emulation is selected, the AIM Symbology Identifier is reported as “[C1”. If RSS Emulation is selected, the AIM Symbology Identifier is reported as “[e0.” Any application that accepts EAN~UCC data can be simplified since it only needs to recognize one data carrier type. Default = No Emulation.



RSS Emulation



128 Emulation



\* EAN•UCC Emulation Off

### 3.27 TCIF Linked Code 39 (TLC39)

This code is a composite code since it has a Code 39 linear component and a MicroPDF417 stacked code component. All bar code readers are capable of reading the Code 39 linear component. The MicroPDF417 component can only be decoded if TLC39 On is selected. The linear component may be decoded as Code 39 even if TLC39 is off.



On



\* Off

### 3.28 Postnet

*Note: For best performance when reading a postal symbology, all other postal symbologies should be turned off.*



On



\* Off

#### 3.28.1 Postnet Check Digit

This selection allows you to specify whether the check digit should be transmitted at the end of the scanned data.



Transmit Check Digit



\* Don't Transmit Check Digit

### 3.29 Planet Code



On



\* Off

#### 3.29.1 Planet Code Check Digit

This selection allows you to specify whether the check digit should be transmitted at the end of the scanned data.



Transmit Check Digit



\* Don't Transmit Check Digit

### 3.30 British Post



On



\* Off

### 3.31 Canadian Post



On



Off

### 3.32 Kix (Netherlands) Post

*Note: Kix code can misread when scanned sideways or upside down. Use [Working Orientation](#), if your Kix codes will not usually be presented upright to the scanner.*



On



\* Off

### 3.33 Australian Post



On



\* Off

### 3.34 Japanese Post



On



\* Off

### 3.35 China Post

*<Default All China Post Settings>*



On



\* Off

### 3.35.1 China Post Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (chapt 3.2) for additional information. Minimum and Maximum lengths = 2-80. Minimum Default = 4, Maximum Default = 80.



Minimum Message Length



Maximum message length

### 3.36 Korea Post

*<Default All Korea Post Settings>*



On



\* Off

### 3.36.1 Korea Post Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (chapt 3.2) for additional information. Minimum and Maximum lengths = 2-80. Minimum Default = 4, Maximum Default = 48.



Minimum Message Length



Maximum Message Length

### 3.37 QR Code

*< Default All QR Code Settings >*



#### 3.37.1 Micro QR Code

This selection applies to both QR Code and Micro QR Code.



On



Off



### 3.38 Data Matrix

<Default All Matrix 2 of 5 Settings>



\* On



Off

#### 3.38.1 Data Matrix Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (chapt 3.2) for additional information. Minimum and Maximum lengths = 1-1500. Minimum Default = 1, Maximum Default = 1500.



Minimum Message Length



Maximum Message Length

### 3.39 MaxiCode

< Default All MaxiCode Settings >



\* On



Off

#### 3.39.1 MaxiCode Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (chapt 3.2) for additional information. Minimum and Maximum lengths = 1-150. Minimum Default = 1, Maximum Default = 150.



Minimum Message Length



Maximum Message Length

### 3.40 Aztec Code

< Default All Aztec Code Settings >



#### *Aztec Code*



\* On



Off

#### 3.40.1 Aztec Code Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (chapt 3.2) for additional information. Minimum and Maximum lengths = 1-3750. Minimum Default = 1, Maximum Default = 3750.



Minimum Message Length



Maximum Message Length

#### 3.41 Aztec Runes

Select Enable Runes if you are scanning Aztec runes, which are the smallest type of Aztec Code symbol with the ability to encode a very short license plate message.



Enable Runes



\* Disable Runes

## Appendix A: Symbolology Chart

<b>Symbology</b>	<b>AIM ID</b>	<b>Possible AIM ID Modifiers (m)</b>	<b>Code ID (hex)</b>
<i>All Symbologies</i>			(0x99)
Australian Post	]X0		A (0x41)
Aztec Code	]zm	0-9, A-C	z (0x7A)
British Post	]X0		B (0x42)
Canadian Post	]X0		C (0x43)
China Post	]X0		Q (0x51)
Codabar	]Fm	0-1	a (0x61)
Codablock F	]Om	0, 1, 4, 5, 6	q (0x71)
Code 11	]H3		h (0x68)
Code 128	]Cm	0, 1, 2, 4	j (0x6A)
Code 16K	]Km	0, 1, 2, 4	o (0x6F)
Code 32 Pharmaceutical	]X0		< (0x3C)
Code 39	]Am	0, 1, 3, 4, 5, 7	b (0x62)
Code 49	]Tm	0, 1, 2, 4	l (0x6C)
Code 93 and 93i	]Gm	0-9, A-Z, a-m	i (0x69)
Data Matrix	]dm	0-6	w (0x77)
EAN-13	]E0		d (0x64)
EAN-8	]E4		D (0x44)
EAN-UCC Composite	]em	0-3	y (0x79)
EAN-13 with Extended Coupon Code	]E3		d (0x64)
Interleaved 2 of 5	]Im	0, 1, 3	e (0x65)
Japanese Post	]X0		J (0x4A)
KIX (Netherlands) Post	]X0		K (0x4B)
Korea Post	]X0		? (0x3F)
Matrix 2 of 5	]X0		m (0x6D)
MaxiCode	]Um	0-3	x (0x78)
Symbology	AIM ID	Possible AIM ID	Code ID (hex)
MicroPDF417	]Lm	3-5	R (0x52)
MSI	]Mm	0	g (0x67)
No Read			(0x9C)
PDF417	]Lm	0-2	r (0x72)
Planet Code	]X0		L (0x4C)
Plessey Code	]P0		n (0x6E)
PosiCode	]pm	0, 1, 2	W (0x57)
Postnet	]X0		P (0x50)
QR/Micro QR Code	]Qm	0-6	s (0x73)
Reduced Space Symbology (RSS-14)	]em	0	y (0x79)
Straight 2 of 5 IATA (two-bar start)	]Rm	0, 1, 3	f (0x66)
TCIF Linked Code 39 (TLC39)	]L2		T (0x54)
Telepen	]Bm	0, 1, 2, 4	t (0x74)

Trioptic Code	]X0		= (0x3D)
UCC/EAN-128	]C1		l (0x49)
UPC-A	]E0		c (0x63)
UPC-A with Extended Coupon Code	]E3		c (0x63)
UPC-E	]E0		E (0x45)
VeriCode*	]X0		v (0x76)

\* Only available by special order.

*Note: "m" represents the AIM modifier character. Refer to International Technical Specification, Symbology Identifiers, for AIM modifier character details.*

*Note: Prefix/Suffix entries for specific symbologies override the universal (All Symbologies, 99) entry*

Refer to [Data Editing](#) beginning on page 6-1 and [Data Formatting](#) beginning on page 7-1 for information about using Code ID and AIM ID

## Appendix B: ASCII Conversion Chart

Dec	Hex	Char	Dec	Hex	Char	Dec	Hex	Char	Dec	Hex	Char
0	00	NUL	32	20		64	40	@	96	60	'
1	01	SOH	33	21	!	65	41	A	97	61	a
2	02	STX	34	22	"	66	42	B	98	62	b
3	03	ETX	35	23	#	67	43	C	99	63	c
4	04	EOT	36	24	\$	68	44	D	100	64	d
5	05	ENQ	37	25	%	69	45	E	101	65	e
6	06	ACK	38	26	&	70	46	F	102	66	f
7	07	BEL	39	27	'	71	47	G	103	67	g
8	08	BS	40	28	(	72	48	H	104	68	h
9	09	HT	41	29	)	73	49	I	105	69	i
10	0A	LF	42	2A	*	74	4A	J	106	6A	j
11	0B	VT	43	2B	+	75	4B	K	107	6B	k
12	0C	FF	44	2C	,	76	4C	L	108	6C	l
13	0D	CR	45	2D	-	77	4D	M	109	6D	m
14	0E	SO	46	2E	.	78	4E	N	110	6E	n
15	0F	SI	47	2F	/	79	4F	O	111	6F	o
16	10	DLE	48	30	0	80	50	P	112	70	p
17	11	DC1	49	31	1	81	51	Q	113	71	q
18	12	DC2	50	32	2	82	52	R	114	72	r
19	13	DC3	51	33	3	83	53	S	115	73	s
20	14	DC4	52	34	4	84	54	T	116	74	t
21	15	NAK	53	35	5	85	55	U	117	75	u
22	16	SYN	54	36	6	86	56	V	118	76	v
23	17	ETB	55	37	7	87	57	W	119	77	w
24	18	CAN	56	38	8	88	58	X	120	78	x
25	19	EM	57	39	9	89	59	Y	121	79	y
26	1A	SUB	58	3A	:	90	5A	Z	122	7A	z
27	1B	ESC	59	3B	;	91	5B	[	123	7B	{
28	1C	FS	60	3C	<	92	5C	\	124	7C	
29	1D	GS	61	3D	=	93	5D	]	125	7D	}
30	1E	RS	62	3E	>	94	5E	^	126	7E	~
31	1F	US	63	3F	?	95	5F	_	127	7F	

Dec.	Hex	Char	Dec.	Hex	Char	Dec.	Hex	Char	Dec.	Hex	Char
128	80	€	160	A0		192	C0	À	224	E0	à
129	81		161	A1	ı	193	C1	Á	225	E1	á
130	82	,	162	A2	ç	194	C2	Â	226	E2	â
131	83	f	163	A3	£	195	C3	Ã	227	E3	ã
132	84	„	164	A4	α	196	C4	Ä	228	E4	ä
133	85	...	165	A5	¥	197	C5	Å	229	E5	å
134	86	†	166	A6	ı	198	C6	Æ	230	E6	æ
135	87	‡	167	A7	§	199	C7	Ç	231	E7	ç
136	88	^	168	A8	ˆ	200	C8	È	232	E8	è
137	89	‰	169	A9	©	201	C9	É	233	E9	é
138	8A	Š	170	AA	ª	202	CA	Ê	234	EA	ê
139	8B	<	171	AB	«	203	CB	Ë	235	EB	ë
140	8C	Œ	172	AC	¬	204	CC	Ï	236	EC	ï
141	8D		173	AD	-	205	CD	Í	237	ED	í
142	8E	Ž	174	AE	®	206	CE	Î	238	EE	î
143	8F		175	AF	-	207	CF	Ï	239	EF	ï
144	90		176	B0	°	208	D0	Ď	240	F0	ď
145	91	´	177	B1	±	209	D1	Ñ	241	F1	ñ
146	92	ˆ	178	B2	²	210	D2	Ò	242	F2	ò
147	93	“	179	B3	³	211	D3	Ó	243	F3	ó
148	94	”	180	B4	´	212	D4	Ô	244	F4	ô
149	95	~	181	B5	µ	213	D5	Õ	245	F5	õ
150	96	—	182	B6	¶	214	D6	Ö	246	F6	ö
151	97	—	183	B7	·	215	D7	×	247	F7	÷
152	98	˜	184	B8	¸	216	D8	Ø	248	F8	ø
153	99	™	185	B9	ı	217	D9	Ù	249	F9	ù
154	9A	š	186	BA		218	DA	Ú	250	FA	ú
155	9B	>	187	BB	»	219	DB	Û	251	FB	û
156	9C	œ	188	BC	¼	220	DC	Ü	252	FC	ü
157	9D		189	BD	½	221	DD	Ý	253	FD	ý
158	9E	ž	190	BE	¾	222	DE	Þ	254	FE	þ
159	9F	˘	191	BF	¿	223	DF	ß	255	FF	˘

## Appendix C: Code Page Mapping of Printed Bar Codes

Code pages define the mapping of character codes to characters. If the data received does not display with the proper characters, it may be because the bar code being scanned was created using a code page that is different from the one the host program is expecting. If this is the case, select the code page with which the bar codes were created. The data characters should then appear properly.

*Note: The Code Page option is available for Code 39, Code 93, and Code 128*

Code Page	Standard	Description
1	CP ISO646	
2 (Default)	ISO 2022	Automatic National Replacement Characters
3	CP Binary	
82	ISO 2022 11 Swe	Swedish Replacement Characters
83	ISO 2022 69 Fra	French/Belgium Replacement Characters
81	ISO 2022 25 Fra	French/Belgium Replacement Characters
84	ISO 2022 11 Ger	German Replacement Characters
85	ISO 2022 11 Ita	Italian Replacement Characters
86	ISO 2022 11 Swi	Swiss Replacement Characters
87	ISO 2022 11 UK	British Replacement Characters
88	ISO 2022 11 Dan	Danish Replacement Characters
89	ISO 2022 11 Nor	Norwegian Replacement Characters
90	ISO 2022 11 Spa	Spanish Replacement Characters

## Appendix D: Sample Symbols

### *Sample Symbols*



**PDF417**



**Code 49**



**RSS-14**



**Postnet**



# APPENDIX E : Programming Chart



a



d



g



l



t



Discard



A



C



c



e



h



r



Save



B



D





F



0



1



2



3



4



5



6



7



8



9



Discard



Save

*Note: If you make an error while scanning the letters or digits (before scanning Save), scan Discard, scan the correct letters or digits, and **Save**.*